

# Visio Tutorial: Database Model Design

IT 4153 Advanced Database

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**SOUTHERN  
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# Overview / Introduction

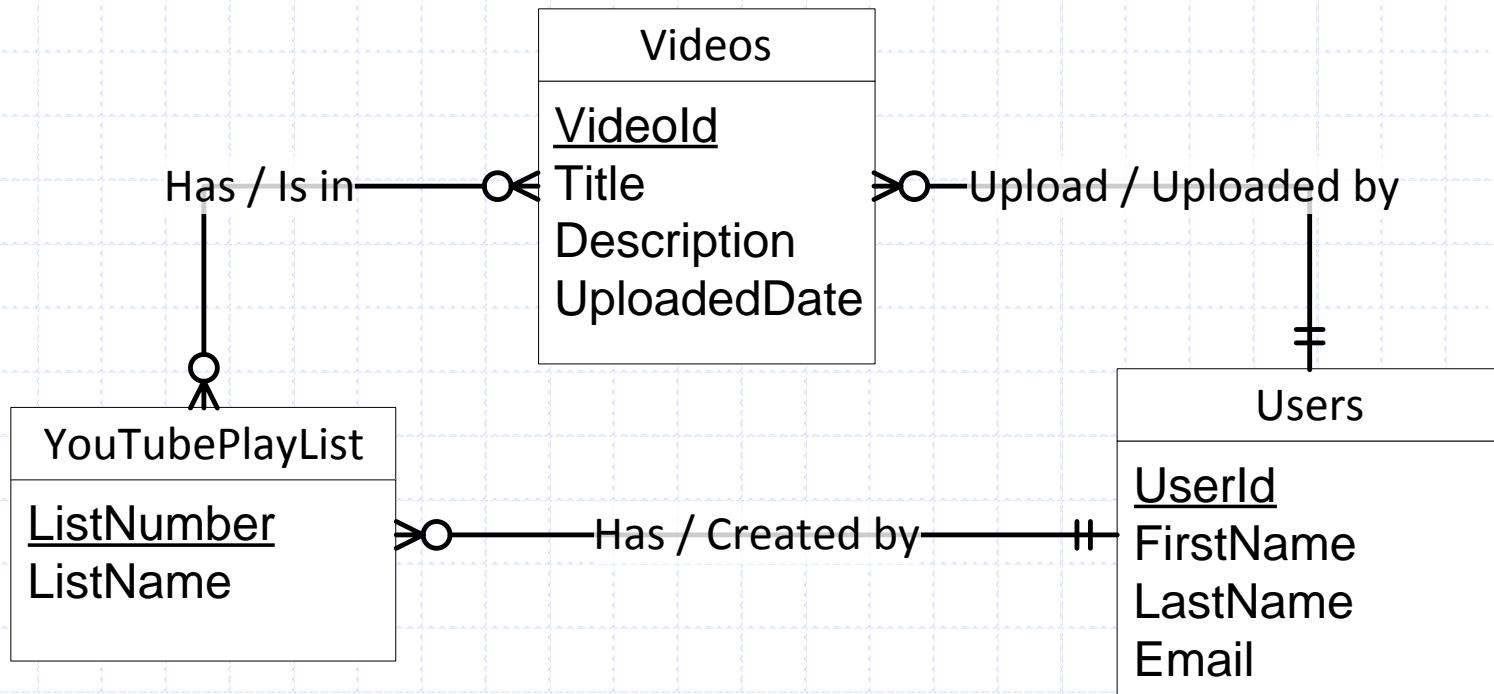
## ◆ Use Visio for database modeling

### ◆ Note

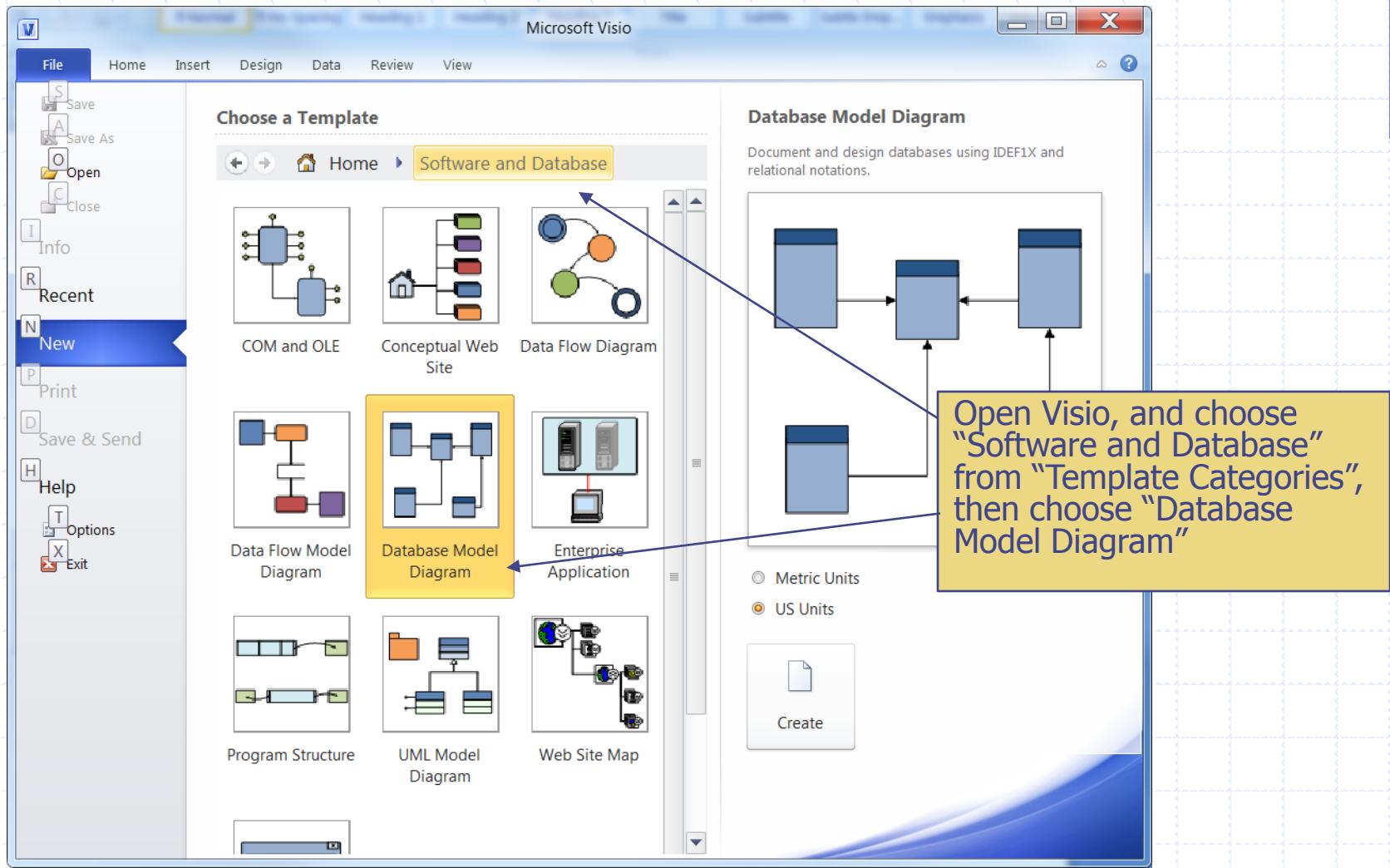
- The database model diagram template in Visio is really a logical database model (plus some physical model), not really a conceptual ERD model

# Starting from an ERD Example

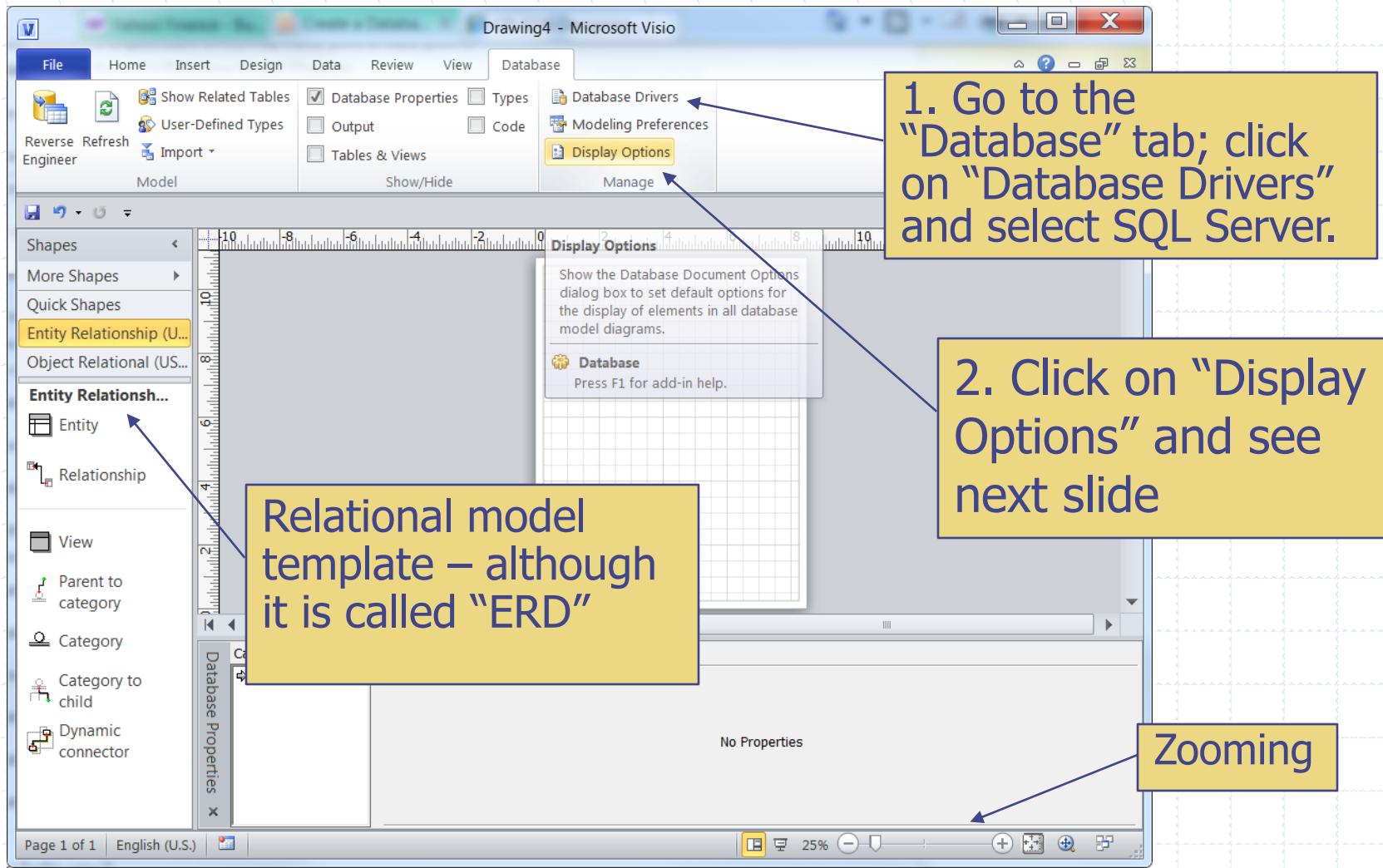
- We will create a logical model based on this ERD



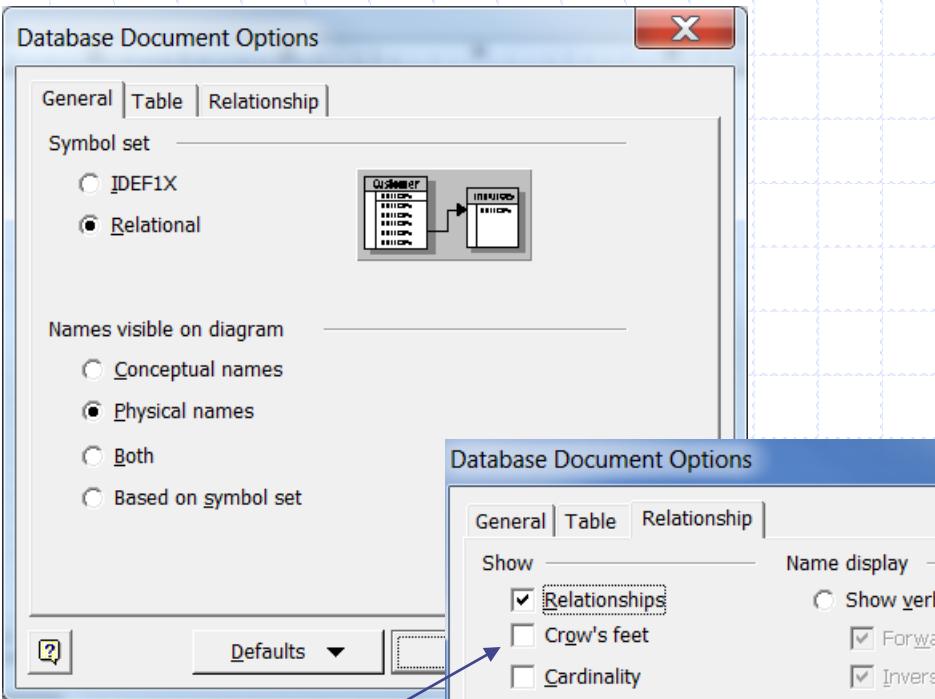
# Open Visio 2010



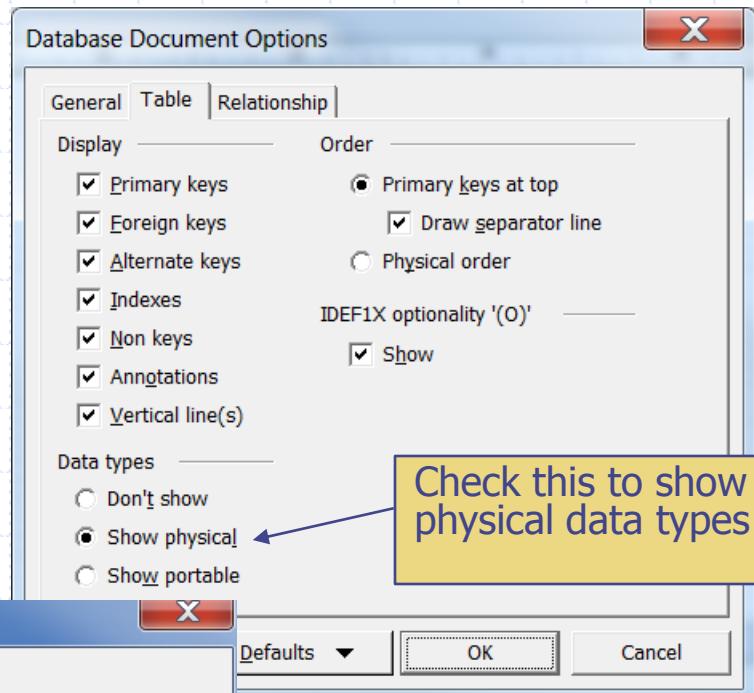
# Settings in the Database Tab



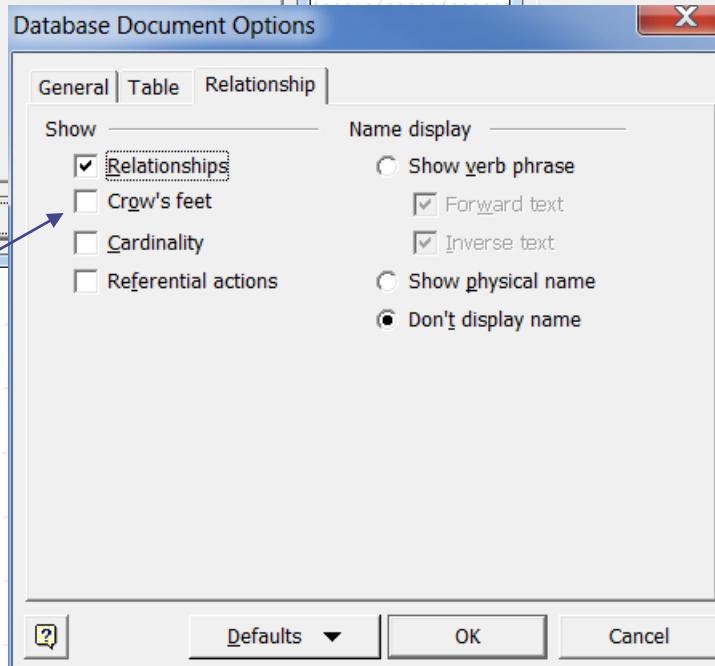
# Display Options



You may want to show crow's feet



Check this to show physical data types



# Create the First Table

The screenshot shows the Microsoft Visio interface with a grid background. A table with one row and three columns is centered on the page. The first column contains the text "PlayList". The ribbon at the top has tabs for File, Home, Insert, Design, Data, Review, and View. The Home tab is selected, showing font and paragraph tools. A callout box says "Change font size to make it bigger" with an arrow pointing to the font size dropdown set to 10pt.

The left sidebar lists "Entity Relationship..." under "Entity Relationship (U...)" and "Object Relational (US...)". Under "Entity Relationships...", "Entity" is selected. Other options include "Relationship", "View", "Parent to category", "Category", and "Category to child". A callout box says "Drag an entity (it really should be a table) and place it on the work area." with an arrow pointing to the table shape on the canvas.

The bottom right corner shows the "Database Properties" panel for the selected table. It includes fields for Physical name (PlayList), Conceptual name (PlayList), Name space, Owner, Source database, and Defining type (Not Typed). A checkbox for "Sync names when typing" is checked. A callout box says "Clicking on the table anytime will bring up this database property panel. Enter a name for the table." with an arrow pointing to the properties panel.

A callout box in the bottom left says "Property categories; note that you need to highlight a shape (table or relationship) first to see its properties." with an arrow pointing to the sidebar.

Property categories;  
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see its properties.

# Define Columns

No direct editing in the shape. Use "database properties" panel at the bottom

Continue to create other 2 tables directly transformed from entities.

Enter name, choose data type, required or not, primary key (PK) here based on the transformation guidelines; double-click a data type to edit column size.

Advanced properties for columns, such as an identity column

The screenshot shows a Microsoft Visio window titled "Drawing4 - Microsoft Visio". The ribbon has tabs for File, Database, View, Properties, Types, Code, Database Drivers, Modeling Preferences, Display Options, and Manage. The left sidebar shows shapes like Entity Relationship (UML), Object Relational (USQL), Entity Relationship..., Entity, and Relationship. The main canvas contains a table named "Playlist" with two columns: "PK" (data type int) and "ListName" (data type char(10)). A callout box points to the table with the text "No direct editing in the shape. Use 'database properties' panel at the bottom". Another callout box points to the "Database Properties" panel at the bottom right with the text "Continue to create other 2 tables directly transformed from entities.". A third callout box points to the "Database Properties" panel with the text "Enter name, choose data type, required or not, primary key (PK) here based on the transformation guidelines; double-click a data type to edit column size.". The "Database Properties" panel includes sections for Categories (Definition, Columns, Primary ID, Indexes, Triggers, Check, Extended Notes), a table for Physical Name, Data Type, Req'd, PK, and Notes (with rows for ListNumber and ListName), and buttons for Add, Remove, Edit..., Move Up, and Move Down. The status bar at the bottom shows "Page 1 of 1", "Width: 1.763 in.", "Height: 0.889 in.", "Angle: 0°", "English (U.S.)", "125%", and zoom controls.

Physical Name	Data Type	Req'd	PK	Notes
ListNumber	int	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ListNumber identifies Playlist
ListName	char(10)	<input type="checkbox"/>	<input type="checkbox"/>	ListName is of Playlist

# Define Relationships

Drag a relationship shape from the template. Connect the arrow end to the “one” side, and the other end to the “many” side. You may practice a while to move only the line end only (not the complete line).

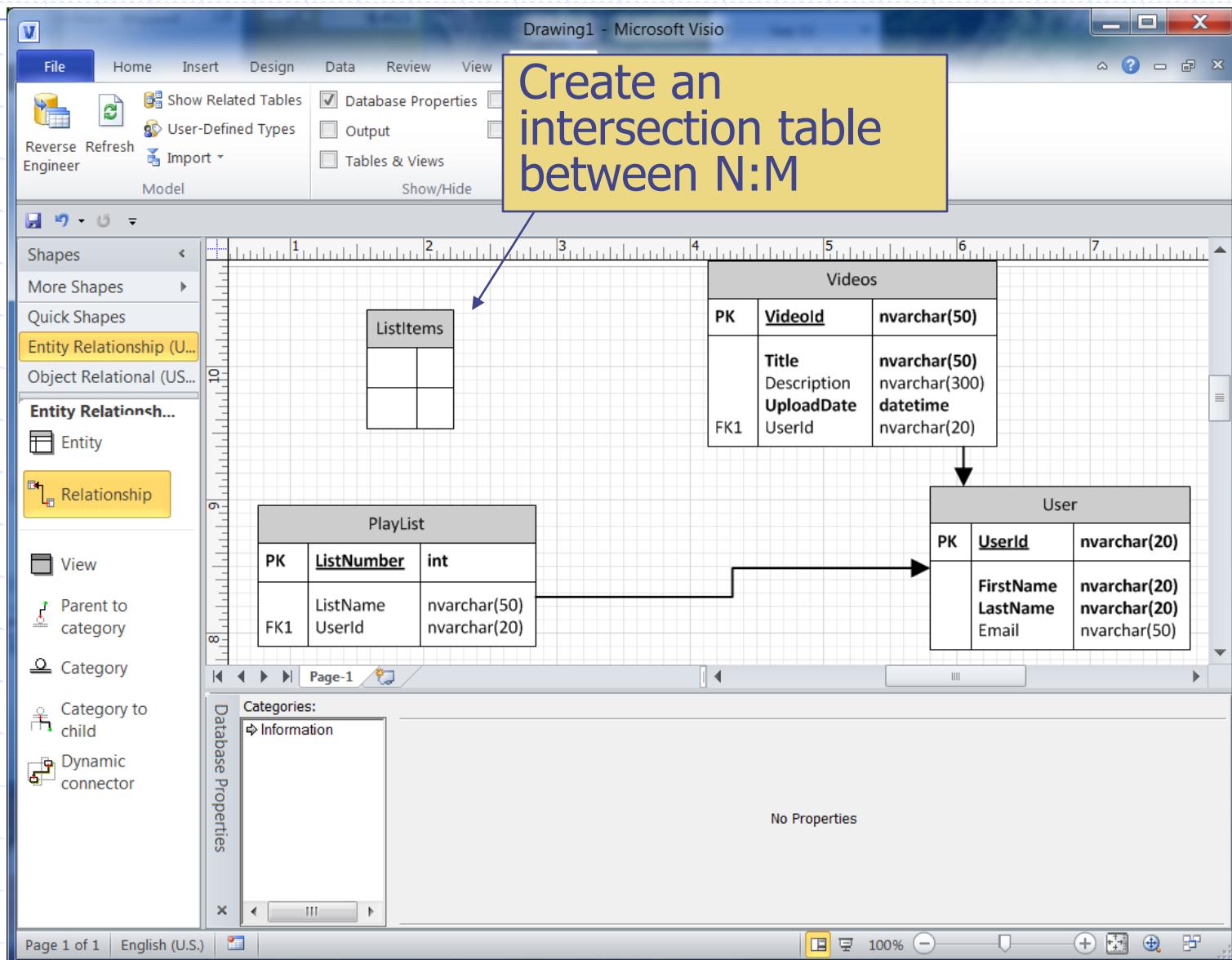
When the red border appears, it's connected.

The FK column is automatically added by Visio when the relationship line is connected. Sometimes you have another same column already. Just delete one which is not assigned as FK.

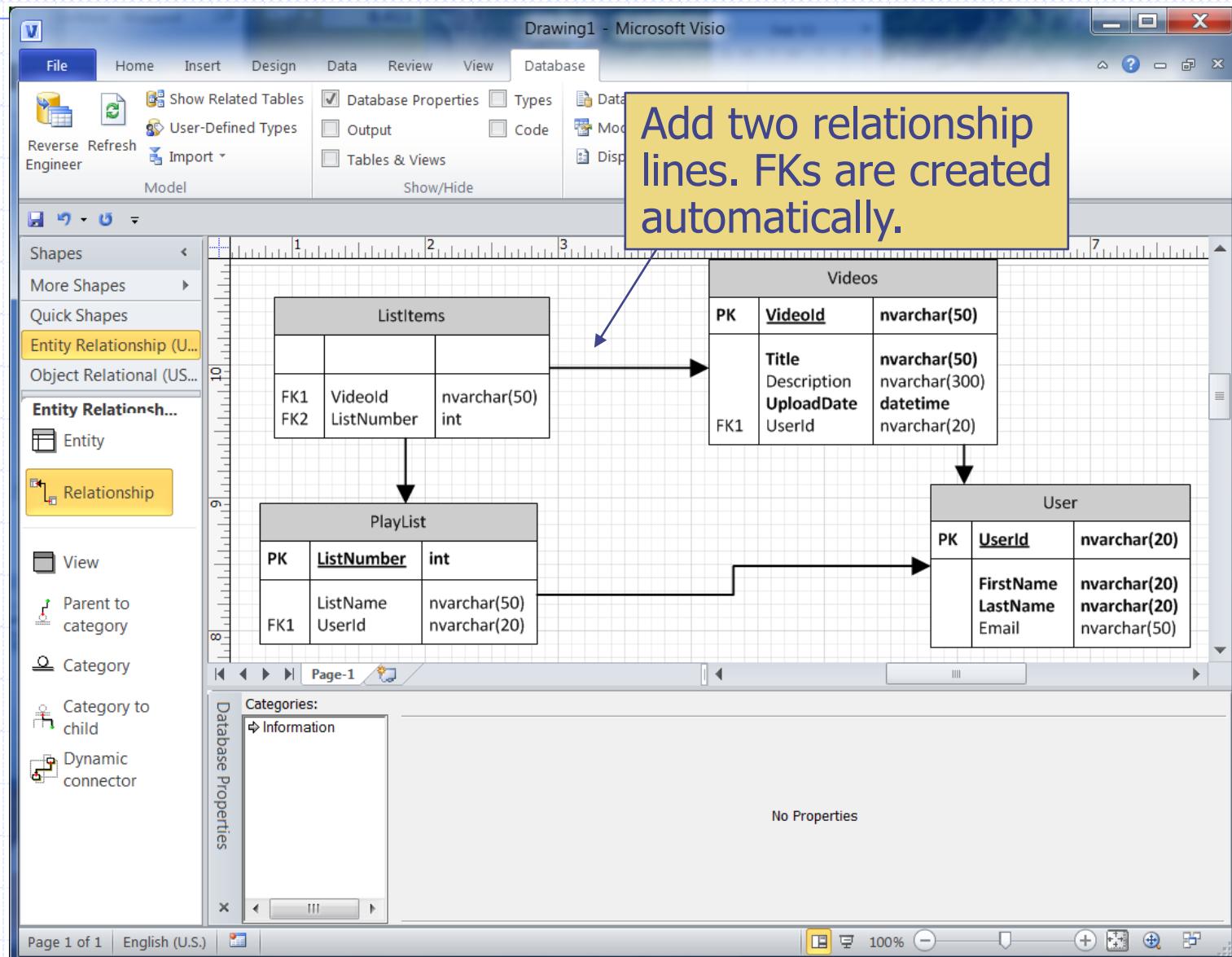
Visio will automatically detect the PK/FK pair. If not correct, click on the relationship and change it here.

The screenshot shows a Microsoft Visio Database diagram titled "Drawing1 - Microsoft Visio". The "Database" tab is selected in the ribbon. On the left, the "Object Relational (US units)" pane is open, showing the "Entity Relationship (US units)" template with a "Relationship" icon highlighted. The main workspace contains two tables: "PlayList" and "User". The "PlayList" table has columns: PK (int), ListNumber (int), ListName (nvarchar(50)), and UserId (nvarchar(20)). The "User" table has columns: PK (nvarchar(20)), FirstName (nvarchar(20)), LastName (nvarchar(20)), Email (nvarchar(50)), and UserId (nvarchar(20)). A relationship line connects the "UserId" column in the "PlayList" table to the "PK" column in the "User" table. The "User" table is highlighted with a red border. In the bottom right corner, there is a "Database Properties" dialog box with sections for "Parent: User" and "Child: PlayList", showing the relationship settings.

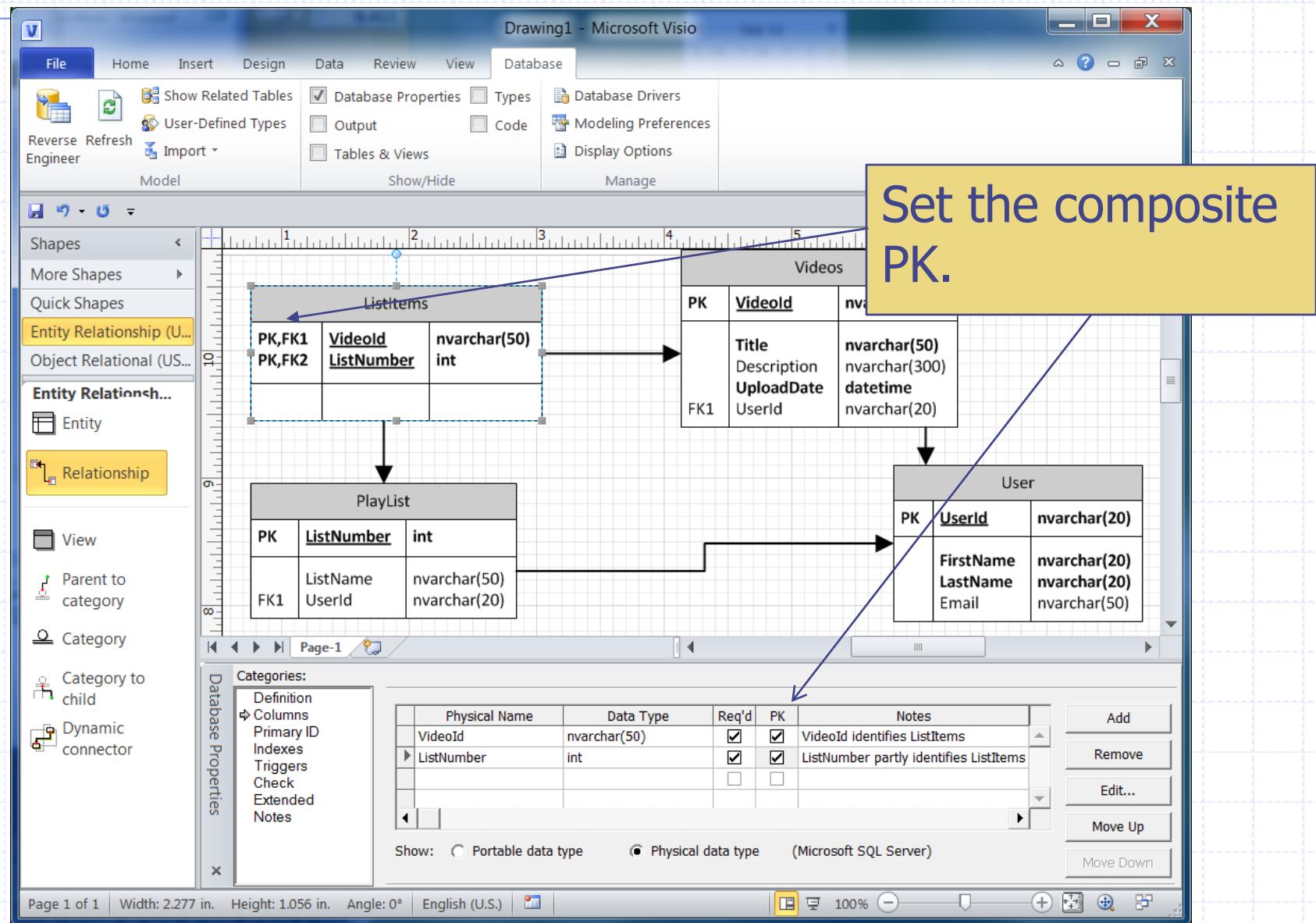
# Transform N:M Relationship -1



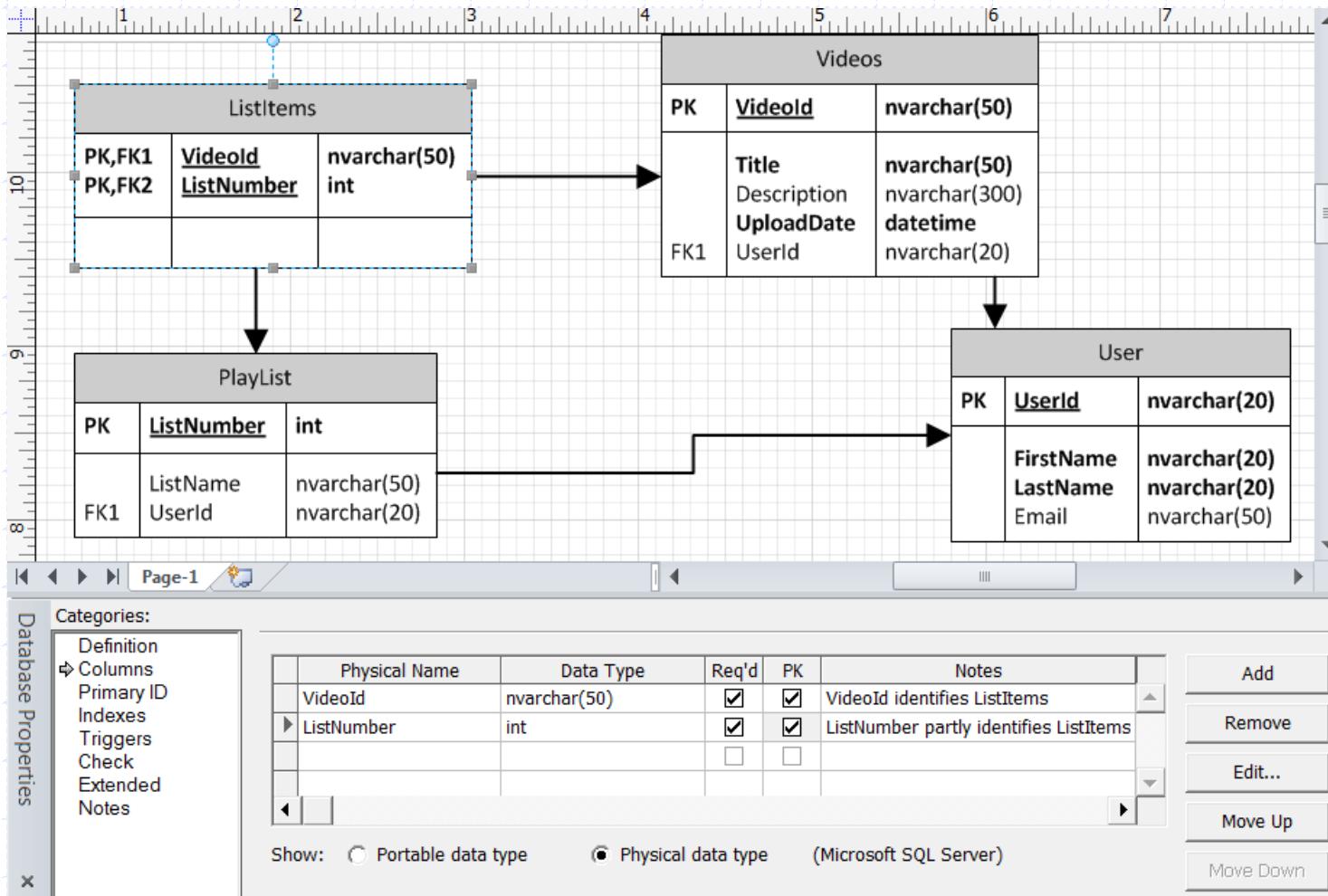
# Transform N:M Relationship -2



# Transform N:M Relationship -3



# Completed



# Additional Tutorials

## ◆ Create a database model

- <http://office.microsoft.com/en-us/visio-help/create-a-database-model-also-known-as-entity-relationship-diagram-HA010115477.aspx>
- Check out section 1 (should be 0, “create a new model diagram from scratch”) and 1

## ◆ Database Concepts 5<sup>th</sup> edition Online Appendix D

- <http://www.pearsonhighered.com/kroenke>

## ◆ Visio 2007 video tutorial (there are three parts)

- <http://www.youtube.com/watch?v=1BYt3wmkgXE>